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EXAMINER

ZHEN, LI B

ART UNIT PAPER NUMBER

2194

DATE MAILED: 06/15/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/740,076

Applicant(s)

THORNTON ET AL.

Examiner

Li B. Zhen

Art Unit

2194

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 17 February 2005.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-30 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-30 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

**DETAILED ACTION**

1. Claims 1 – 30 are pending in the current application.

***Claim Rejections - 35 USC § 101***

2. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

3. Claims 17 – 23 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.
4. Claims 17 – 23 are directed to method steps, which can be practiced mentally in conjunction with pen and paper, therefore they are directed to non-statutory subject matter. Specifically, as claimed, it is uncertain what performs each of the claimed method steps. Moreover, each of the claimed steps, inter alia, submitting, storing, receiving, extracting, delegating, performing, completing, returning, retrieving, assigning, communicating and informing, can be practiced mentally in conjunctions with pen and paper. The claimed steps do not define a machine or computer implemented process [see MPEP 2106]. Therefore, the claimed invention is directed to non-statutory subject matter. (The examiner suggests applicant to change “method” to “computer implemented method” in the preamble to overcome the outstanding 35 U.S.C. 101 rejection).

***Double Patenting***

Art Unit: 2194

5. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

6. Claims 1 and 24 are provisionally rejected under the judicially created doctrine of double patenting over claims 1 and 3 - 6 of copending Application No. 09/740487 [hereinafter referred to as APP487]. This is a provisional double patenting rejection since the conflicting claims have not yet been patented.

As to claims 1 and 24, APP487 teaches a job management apparatus for use in a batch job execution system [claim 1, lines 1-2] including a plurality of service providers [claim 4, lines 1 – 3] in communication with the job management apparatus, the apparatus comprising:

a client communications part which receives a batch job from a client [claim 1; lines 3-4];

an extracting part which extracts a task from the batch job [claim 3, line 1 – 4];  
and,

an assigning part which receives a first signal from at least one of the plurality of service providers [claim 5, lines 1-2], and in response to the first signal delegates the

Art Unit: 2194

task to one of the plurality of service providers for performing the task [claim 6, lines 6-7].

***Claim Rejections - 35 USC § 103***

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. **Claims 1 – 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,549,936 to Hirabayashi [cited in previous office action] in view of U.S. Patent No. 6,112,225 to Kraft et al. [hereinafter referred to as Kraft].**

9. As to claim 1, Hirabayashi teaches the invention substantially as claimed including a job management apparatus [server gateway 203, Fig. 2; col. 6, lines 52 – 65] for use in a batch job execution system including a plurality of service providers [servers 101 – 103, Fig. 1; col. 5, lines 50 – 63] in communication with the job management apparatus, the apparatus comprising:

a client communications part which receives a batch job from a client [server gateway carries out the following processing: Receiving a variety type of requests (demand) from the respective clients; col. 6, lines 28 – 30];

Art Unit: 2194

an extracting part which extracts a task from the batch job [a step of extracting by the second computer, the content of the plurality of scripts in the request data stream; col. 2, lines 48 – 49]; and,

an assigning part which delegates the task to one of the plurality of service providers [judging to which server the request should be transferred] for performing the task [server gateway 203 receives the request block 202 transferred from the respective clients and analyzes the request, then judging to which server the request should be transferred; col. 6, lines 53 – 56].

10. Although Hirabayashi teaches the invention substantially as claimed, Hirabayashi does not specifically teach receiving a first signal from at least one of the plurality of service providers, and in response to the first signal delegating the task to one of the plurality of service providers for performing the task.

However, Kraft teaches a job management apparatus [a system for processing a computer executable "aggregate" task by dividing it into subtasks and distributing the subtasks "on demand" to remotely located subscribing computers; col. 2, lines 1 – 13] for use in a batch job [aggregate task; col. 4, lines 1 – 19] execution system [coordinating computer 102; col. 4, lines 1 – 19] including a plurality of service providers [allocates the subtasks among the peripheral computers 106; col. 4, lines 1 – 19], receiving a batch job [coordinating computer 102 obtains an aggregate task; col. 4, lines 1 – 19], an extracting part which extracts a task from the batch job [task scheduler 214 divides the aggregate task into independent subparts; col. 4, line 62 – col. 5, line 2], receiving a first signal from at least one of the plurality of service providers [task

Art Unit: 2194

manager 206 in step 612 requests a subtask. This involves submitting a subtask request to the coordinating computer 102. To benefit the coordinating computer 102, the subtask request may be accompanied by a machine-readable description of the peripheral computer's hardware components, operating system, and the like; col. 9, lines 17 – 29], and in response to the first signal delegating the task to one of the plurality of service providers [Upon receipt of the subtask (step 614), the peripheral computer 106 has "subscribed" to the coordinating computer's aggregate task; col. 9, lines 18 – 28] for performing the task [the task execution engine 208 may start computing the subtask in step 618; col. 9, lines 18 – 28].

11. It would have been obvious to a person of ordinarily skilled in the art at the time of the invention to apply the teaching of receiving a first signal from at least one of the plurality of service providers, and in response to the first signal delegating the task to one of the plurality of service providers for performing the task as taught by Kraft to the invention of Hirabayashi because this provide a method to allocate and coordinate completion of a subdivisible processing task among subscribing computers during idle processing time [col. 2, lines 45 - 55 of Kraft].

12. As to claim 9, Hirabayashi as modified teaches a batch job execution system [col. 6, lines 52 – 65 of Hirabayashi] for communicating with at least one client, comprising:

a job management apparatus in communication with the clients which receives a batch job from a client [col. 6, lines 28 – 30 of Hirabayashi], extracts a task from the

Art Unit: 2194

batch job [col. 2, lines 48 – 49 of Hirabayashi], and assigns the task [col. 6, lines 53 – 56 of Hirabayashi];

a job database in communication with the job management apparatus which stores the batch job [registers a job into the job queue 923, Fig. 9; col. 10, line 45 of Hirabayashi];

a plurality of service providers [allocates the subtasks among the peripheral computers 106; col. 4, lines 1 – 19 of Kraft] in communication with the job management apparatus [col. 2, lines 1 – 13 and col. 4, lines 1 – 19 of Kraft ] which receive the assigned task [coordinating computer 102 obtains an aggregate task; col. 4, lines 1 – 19 of Kraft], perform the task [the task execution engine 208 may start computing the subtask in step 618; col. 9, lines 18 – 28 of Kraft], and return a result to the job management apparatus [result manager 216 receives the results of completed subtasks from the peripheral computers 106; col. 4, line 62 – col. 5, line 2 of Kraft]; and,

at least one provider manager [result manager 216; col. 7, line 42 – col. 8, line 4 of Kraft] in communication with the job management apparatus and in communication with the plurality of service providers which monitors the tasks being performed on the service providers and provides status information to the job management apparatus [result manager 216 in step 512 determines whether completion messages have been received from all peripheral computers 106 cooperatively performing the aggregate task. If not, step 512 continues to monitor the completion status; col. 7, line 42 – col. 8, line 4 of Kraft].



Art Unit: 2194

13. As to claim 13, Hirabayashi as modified teaches a system for executing a batch job including a plurality of tasks [col. 6, lines 52 – 65 of Hirabayashi], the system comprising:

a first service provider configured to send a first signal for requesting work [task manager 206 in step 612 requests a subtask. This involves submitting a subtask request to the coordinating computer 102; col. 9, lines 17 – 29 of Kraft];

a second service provider configured to send a second signal for requesting work [task scheduler 214 determines whether any subtask requests have been received from the peripheral computers 106; col. 7, lines 29 – 43 of Kraft]; and,

a job management apparatus including an assigning part and a contact part in communication with the first and second service providers, the assigning part configured to delegate one of the tasks to one of the first and second service providers responsive to receiving the first and second signals from the service providers [task scheduler 214 considers the particular hardware configuration and operating system of the peripheral computer 106 in choosing and sending the subtask of step 510; col. 7, lines 29 – 43 of Kraft].

14. As to claim 17, Hirabayashi as modified teaches a method for preparing and executing a batch job by a batch job execution system [col. 6, lines 52 – 65 of Hirabayashi], comprising the steps of:

submitting a batch job with processing parameters to a job management apparatus [col. 6, lines 28 – 30 of Hirabayashi];

Art Unit: 2194

storing the batch job in a job database [registers a job into the job queue 923, Fig. 9; col. 10, line 45 of Hirabayashi];

receiving a first signal from at least one of a plurality of service providers [col. 9, lines 17 – 29 of Kraft], which informs the job management apparatus of the service providers ability to perform a task [subtask request may be accompanied by a machine-readable description of the peripheral computer's hardware components, operating system, and the like; col. 9, lines 17 – 29 of Kraft];

extracting at least one task from the batch job [col. 2, lines 48 – 49 of Hirabayashi];

delegating the task to the service providers in response to the first signal [task scheduler 214 considers the particular hardware configuration and operating system of the peripheral computer 106 in choosing and sending the subtask of step 510; col. 7, lines 29 – 43 of Kraft];

performing the task delegated to the service provider [the task execution engine 208 may start computing the subtask in step 618; col. 9, lines 18 – 28 of Kraft];

completing the task and returning a result from the service provider to the job management apparatus [result manager 216 receives the results of completed subtasks from the peripheral computers 106; col. 4, line 62 – col. 5, line 2 of Kraft].

15. As to claim 24, Hirabayashi as modified teaches an article of manufacture including:

Art Unit: 2194

an information storage medium wherein is stored information comprising [storing unit 926, Fig. 9; col. 9, lines 43 – 52 of Hirabayashi];

a client communications software component which receives a batch job from a client [col. 6, lines 28 – 30 of Hirabayashi];

an extracting software component which extracts a task from the batch job [col. 2, lines 48 – 49 of Hirabayashi]; and,

an assigning software component which receives a first signal from at least one of a plurality of service providers [task manager 206 in step 612 requests a subtask; col. 9, lines 17 – 29 of Kraft], and in response to the first signal delegates a task to one of the plurality of service providers [task scheduler 214 considers the particular hardware configuration and operating system of the peripheral computer 106 in choosing and sending the subtask of step 510; col. 7, lines 29 – 43 of Kraft] for performing the task [col. 9, lines 18 – 28 of Kraft].

16. As to claim 2, Hirabayashi teaches the plurality of service providers are operating on a plurality of machines [col. 6, lines 11 – 14].

17. As to claim 3, Hirabayashi as modified teaches the first signal informs the assigning part of the service providers ability to execute a task [col. 9, lines 17 – 29 of Kraft].

Art Unit: 2194

18. As to claim 4, Hirabayashi teaches at least one contact part which receives a second signal from the service providers, which updates the status of the task being performed by the service provider [element 913, Fig. 9; col. 11, lines 48 – 51].

19. As to claim 5, Hirabayashi teaches the first signal specifies a minimum frequency at which the second signal will be sent to the contact part [col. 3, lines 13 – 14].

20. As to claim 6, Hirabayashi teaches the second signal informs the contact part of completion of the task [col. 3, lines 25 – 27].

21. As to claim 7, Hirabayashi teaches a job database which stores the batch job upon receipt from the client [registers a job into the job queue 923, Fig. 9; col. 10, line 45]; and the job database being regularly updated [job queue managing unit; col. 10, lines 46 – 48] as jobs are executed by batch job execution system [executing instruction for the command is registered into the job queue; col. 10, lines 46 – 48].

22. As to claim 8, Hirabayashi teaches retrieving part, which retrieves the batch job from the job database when the batch job is to be executed [col. 11, lines 2 – 4].

23. As to claim 10, Hirabayashi as modified teaches the provider manager in response to a request from the job management apparatus assigns additional service

Art Unit: 2194

providers to receive tasks from the job management apparatus [col. 7, lines 29 – 43 of Kraft].

24. As to claim 11, Hirabayashi teaches if the service provider fails to complete the task within a predetermined time, the provider manager communicates with the service provider, and informs the job management apparatus of the task status in response to the communication with the service provider [col. 11, lines 48 – 51].

25. As to claim 12, Hirabayashi teaches the provider manager informs the service provider performing the task to terminate performance of the task in response to a signal received from said job management apparatus [col. 8, lines 13 – 16].

26. As to claim 14, Hirabayashi as modified teaches a provider manager associated with the first service provider, the provider manager in communication with the job management apparatus and configured to send control signals between the first service provider and the job management apparatus [col. 7, lines 29 – 43 of Kraft].

27. As to claim 15, Hirabayashi as modified teaches the provider manager is further associated with the second service provider and configured to send control signals between the second service provider and the job management apparatus [col. 4, line 62 – col. 5, line 3 of Kraft].

28. As to claim 16, Hirabayashi as modified teaches the first and second service providers are in communication with the job management apparatus via a data network [system 100 includes a coordinating computer 102 connected to multiple peripheral computers 106 by a network 104; col. 4, lines 1 – 19 of Kraft].

29. As to claim 18, Hirabayashi as modified teaches retrieving the batch job from the batch job database prior to the step of extracting at least one task [col. 11, lines 2 – 4 of Hirabayashi].

30. As to claim 19, Hirabayashi as modified teaches delegating a plurality of tasks to the plurality of service providers to be performed in parallel [other aggregate tasks have been distributed concurrently; col. 7, line 67 – col. 8, line 5 of Kraft].

31. As to claim 20, Hirabayashi as modified teaches receiving a second signal from the service provider performing the task, which updates the status of the task being performed [col. 7, lines 42 – 67 of Kraft].

32. As to claim 21, Hirabayashi as modified teaches determining whether the batch job execution system is able to process the batch job [col. 7, lines 29 – 43 of Kraft] and assigning additional service providers to perform tasks for the job management apparatus if it is determined that the batch job execution system is unable to process the job [col. 4, lines 19 – 35 of Hirabayashi].

33. As to claim 22, Hirabayashi teaches communicating with the service provider performing the task after a predetermined time [see Fig. 4, communication sequence]; informing the job management apparatus of the tasks status; and, the job management apparatus determining whether to re-assign the task or wait for task completion in response to the step of updating the task status [col. 6, lines 24 – 25].

34. As to claim 23, Hirabayashi teaches terminating the step of performing the task in response to receiving a signal from the job management apparatus, prior to the step of completing the task [col. 6, lines 25 – 26].

35. As to claim 25, Hirabayashi as modified teaches the assigning software component monitors which service providers are able to perform a task [col. 7, lines 29 – 43 of Kraft].

36. As to claim 26, this is rejected for the same reasons as claim 4 above.

37. As to claim 27, this is rejected for the same reasons as claim 5 above.

38. As to claim 28, Hirabayashi as modified teaches a job database software component which stores the batch job upon receipt from the client [a script file storing unit 926; col. 9, lines 43 – 52 of Hirabayashi], wherein the client communications

Art Unit: 2194

software component is in communication with the job database software component [task manager 206 may also maintain statistics regarding the historical application consumption of the peripheral computer's resources toward subtask computation; col. 5, lines 3 – 13 of Kraft].

39. As to claim 29, this is rejected for the same reasons as claim 8 above.

40. As to claim 30, Hirabayashi as modified teaches at least one provider manager software component [col. 7, line 42 – col. 8, line 4 of Kraft] in communication with the plurality of service providers which monitors the tasks being performed on the service providers and provides status information to the job management software component [col. 7, line 42 – col. 8, line 4 of Kraft].

**41. Claims 1, 9, 13, 17 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,826,753 to Dageville et al. [hereinafter referred to as Dageville] in view of Kraft.**

42. As to claim 1, Dageville teaches the invention substantially as claimed including a job management apparatus [Coordinator process 104, Fig. 1; col. 5, lines 11 – 19] for use in a batch job execution [divides each task into work granules; col. 5, lines 11 – 19] system including a plurality of service providers [processes that may be executing on



Art Unit: 2194

either of nodes 102, 110, and 112; col. 5, lines 11 – 19] in communication with the job management apparatus, the apparatus comprising:

a client communications part which receives a batch job from a client

[Coordinator process 104 participates in the management of tasks; col. 5, lines 10 – 19];

an extracting part which extracts a task from the batch job [coordinator process 104 divides each task into work granules; col. 5, lines 11 – 19]; and,

an assigning part which delegates the task to one of the plurality of service providers [To generate and distribute the work granules so that they may be efficiently executed, coordinator process 104 needs information that may be used to determine how efficiently a work granule may execute on a node. Such information is stored in affinity data 120; col. 5, lines 20 – 29] for performing the task [work granules to slave processes that may be executing on either of nodes 102, 110, and 112; col. 5, lines 10 – 19].

43. Although Dageville teaches the invention substantially as claimed, Dageville does not specifically teach receiving a first signal from at least one of the plurality of service providers, and in response to the first signal delegating the task to one of the plurality of service providers for performing the task.

However, Kraft teaches a job management apparatus [a system for processing a computer executable "aggregate" task by dividing it into subtasks and distributing the subtasks "on demand" to remotely located subscribing computers; col. 2, lines 1 – 13] for use in a batch job [aggregate task; col. 4, lines 1 – 19] execution system [coordinating computer 102; col. 4, lines 1 – 19] including a plurality of service providers

Art Unit: 2194

[allocates the subtasks among the peripheral computers 106; col. 4, lines 1 – 19], receiving a batch job [coordinating computer 102 obtains an aggregate task; col. 4, lines 1 – 19], an extracting part which extracts a task from the batch job [task scheduler 214 divides the aggregate task into independent subparts; col. 4, line 62 – col. 5, line 2], receiving a first signal from at least one of the plurality of service providers [task manager 206 in step 612 requests a subtask. This involves submitting a subtask request to the coordinating computer 102. To benefit the coordinating computer 102, the subtask request may be accompanied by a machine-readable description of the peripheral computer's hardware components, operating system, and the like; col. 9, lines 17 – 29], and in response to the first signal delegating the task to one of the plurality of service providers [Upon receipt of the subtask (step 614), the peripheral computer 106 has "subscribed" to the coordinating computer's aggregate task; col. 9, lines 18 – 28] for performing the task [the task execution engine 208 may start computing the subtask in step 618; col. 9, lines 18 – 28].

44. It would have been obvious to a person of ordinarily skilled in the art at the time of the invention to apply the teaching of receiving a first signal from at least one of the plurality of service providers, and in response to the first signal delegating the task to one of the plurality of service providers for performing the task as taught by Kraft to the invention of Dageville because this provide a method to allocate and coordinate completion of a subdivisible processing task among subscribing computers during idle processing time [col. 2, lines 45 - 55 of Kraft].

Art Unit: 2194

45. As to claim 9, Dageville as modified teaches a batch job execution system [col. 5, lines 11 – 19 of Dageville] for communicating with at least one client, comprising:

a job management apparatus in communication with the clients which receives a batch job from a client [Coordinator process 104 participates in the management of tasks; col. 5, lines 10 – 19 of Dageville], extracts a task from the batch job [coordinator process 104 divides each task into work granules; col. 5, lines 11 – 19 of Dageville], and assigns the task [col. 5, lines 20 – 29 of Dageville];

a job database in communication with the job management apparatus which stores the batch job [col. 5, lines 3 – 13 of Kraft];

a plurality of service providers [allocates the subtasks among the peripheral computers 106; col. 4, lines 1 – 19 of Kraft] in communication with the job management apparatus [col. 2, lines 1 – 13 and col. 4, lines 1 – 19 of Kraft ] which receive the assigned task [coordinating computer 102 obtains an aggregate task; col. 4, lines 1 – 19 of Kraft], perform the task [the task execution engine 208 may start computing the subtask in step 618; col. 9, lines 18 – 28 of Kraft], and return a result to the job management apparatus [result manager 216 receives the results of completed subtasks from the peripheral computers 106; col. 4, line 62 – col. 5, line 2 of Kraft]; and,

at least one provider manager [result manager 216; col. 7, line 42 – col. 8, line 4 of Kraft] in communication with the job management apparatus and in communication with the plurality of service providers which monitors the tasks being performed on the service providers and provides status information to the job management apparatus [result manager 216 in step 512 determines whether completion messages have been

Art Unit: 2194

received from all peripheral computers 106 cooperatively performing the aggregate task. If not, step 512 continues to monitor the completion status; col. 7, line 42 – col. 8, line 4 of Kraft].

46. As to claim 13, Dageville as modified teaches a system for executing a batch job including a plurality of tasks [divides each task into work granules; col. 5, lines 11 – 19 of Dageville], the system comprising:

a first service provider configured to send a first signal for requesting work [task manager 206 in step 612 requests a subtask. This involves submitting a subtask request to the coordinating computer 102; col. 9, lines 17 – 29 of Kraft];

a second service provider configured to send a second signal for requesting work [task scheduler 214 determines whether any subtask requests have been received from the peripheral computers 106; col. 7, lines 29 – 43 of Kraft]; and,

a job management apparatus including an assigning part and a contact part in communication with the first and second service providers, the assigning part configured to delegate one of the tasks to one of the first and second service providers responsive to receiving the first and second signals from the service providers [task scheduler 214 considers the particular hardware configuration and operating system of the peripheral computer 106 in choosing and sending the subtask of step 510; col. 7, lines 29 – 43 of Kraft].

Art Unit: 2194

47. As to claim 17, Dageville as modified teaches a method for preparing and executing a batch job by a batch job execution system [divides each task into work granules; col. 5, lines 11 – 19 of Dageville], comprising the steps of:

submitting a batch job with processing parameters to a job management apparatus [Coordinator process 104 participates in the management of tasks; col. 5, lines 10 – 19 of Dageville];

storing the batch job in a job database [col. 5, lines 20 – 29 of Dageville];

receiving a first signal from at least one of a plurality of service providers [col. 9, lines 17 – 29 of Kraft], which informs the job management apparatus of the service providers ability to perform a task [subtask request may be accompanied by a machine-readable description of the peripheral computer's hardware components, operating system, and the like; col. 9, lines 17 – 29 of Kraft];

extracting at least one task from the batch job [coordinator process 104 divides each task into work granules; col. 5, lines 11 – 19 of Dageville];

delegating the task to the service providers in response to the first signal [task scheduler 214 considers the particular hardware configuration and operating system of the peripheral computer 106 in choosing and sending the subtask of step 510; col. 7, lines 29 – 43 of Kraft];

performing the task delegated to the service provider [the task execution engine 208 may start computing the subtask in step 618; col. 9, lines 18 – 28 of Kraft];

completing the task and returning a result from the service provider to the job management apparatus [result manager 216 receives the results of completed subtasks from the peripheral computers 106; col. 4, line 62 – col. 5, line 2 of Kraft].

48. As to claim 24, Dageville as modified teaches an article of manufacture including: an information storage medium wherein is stored information comprising [disks store particular data files, which data files are used to store particular database tables or other database objects, and the organization of tables and other database objects; col. 5, lines 20 - 29 of Dageville];

a client communications software component which receives a batch job from a client [col. 5, lines 10 – 19 of Dageville];

an extracting software component which extracts a task from the batch job [col. 5, lines 11 – 19 of Dageville]; and,

an assigning software component which receives a first signal from at least one of a plurality of service providers [task manager 206 in step 612 requests a subtask; col. 9, lines 17 – 29 of Kraft], and in response to the first signal delegates a task to one of the plurality of service providers [task scheduler 214 considers the particular hardware configuration and operating system of the peripheral computer 106 in choosing and sending the subtask of step 510; col. 7, lines 29 – 43 of Kraft] for performing the task [col. 9, lines 18 – 28 of Kraft].

Art Unit: 2194

**Conclusion**


49. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Li B. Zhen whose telephone number is (571) 272-3768. The examiner can normally be reached on Mon - Fri, 8:30am - 5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Meng-Ai An can be reached on (571) 272-3756. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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